REMARKS

I Claim of priority

The statement of priority on page 7, lines 8-10 is removed and added to page 1, lines 10-13, to more clearly claim priority from the provisional applications. Applicants assert that no new matter is added by this amendment.

II Claims

Claims 6-14 and claim 16 have been cancelled without prejudice of filing a divisional or continuation application.

III Claim rejection under 35 U.S.C. § 112, first paragraph

Claim 5 rejection is obviated by the attached statement that all restrictions imposed by the depositor on the availability to the public of the deposited material will be irrevocably removed upon the granting of the patent.

VI Claim rejection under 35 U.S.C. § 103(a)

Claim 1-4 and 15 were rejected under 35 U.S.C. § 103(a), as unpatentable over Spencer et al. (U.S. Patent 6,040,497, filed 3 April 1997) and Brown et al (U.S. Patent 5,424,412) in view of Kakefunda et al (U.S. Patent 5,853,973).

Glyphosate is a systemic herbicide that moves from source tissues to sink tissues in a treated plant. Inorder to provide plants that are commercially tolerant to high rates of glyphosate, the expression of a glyphosate tolerant EPSPS enzyme must be expressed in all of the plant cells throughout the life of the plant. It is often unpredictable which combination of genetic elements in a transgene will provide this herbicide tolerant phenotype. Substantial experimentation must be conducted to test these combinations. Kadefunda (column 20, lines 47-50) refers to herbicide resistant AHAS genes and that single or multiple copies of the genes can be transformed into a crop plant to provide herbicide tolerance, however, Kadefunda does provide any examples of any single or multiple combinations of genetic elements that are necessary to provide imidazolinone tolerance in plants. Kadefunda does not provide instructions on how to select multiple expression cassettes to provide enhanced herbicide tolerance. Further more, Kadefunda does not consider glyphosate herbicide tolerance in plants and does not provide any direction as to how genetic elements would be selected to specifically provide glyphosate tolerance to a transgenic plant. These failures in the Kadefunda disclosure therefore would not provide motivation for one to combine multiple expression cassettes to enhance glyphosate tolerance in plants.

The applicants respectfully contend that the DNA construct of claim 1 of the present invention provides a substantial improvement in the glyphosate tolerance of plants containing this combination of genetic elements. The applicants acknowledge that Spencer teaches the rice actin 1 promoter driving expression of a glyphosate tolerant EPSPS encoding DNA molecule. However, the corn plant (e.g., GA21) that has useful levels of vegetative and reproduce tolerance containing this DNA construct has been shown to contain at least 3 transgene expression

cassettes arranged in tandem (page 16, lines 27-29 of the present invention referencing Regulatory submission document SCP/GMO/232-Final). The representative corn plant of the present invention (nk603) demonstrates a lower level of vegetative injury and lower yield reduction after spraying with Roundup Ultra (Table 1 page 18, lines 3-19) compared to corn plant GA21. The plant of the present invention (nk603) was also shown to contain only the two expression cassettes of pMON25496 (P-Os.Act1/CP4 EPSPS and P-CaMV35S/CP4 EPSPS). Additional evidence is shown in Table 1, page 18, lines 34-39 that compared the average percent glyphosate induced vegetative injury of nk603 and 3 additional corn events transformed with the two expression cassette DNA construct of the present invention to six corn events transformed with a DNA construct expression containing only the first expression eassette (rice actin promoter, P-Os.Act1). The average percent glyphosate induced vegetative injury was less in the plants containing the two expression cassette construct. The DNA construct of the present invention provides plants that are more glyphosate tolerant than plants transformed with the single expression cassette construct containing the rice actin promoter only or the CaMV 35S only. Therefore, the DNA construct of claim 1 of the present invention provides enhanced glyphosate tolerance and the plant example (nk603) is shown to contain only two expression cassettes.

Additionally, the construct of claim 1 when used in wheat (pMON30139, Figure 3, Chen et al., WO 02/27004, reference provided) provides wheat plants that are highly tolerant to glyphosate herbicide. Chen compared wheat plant transformed with the single rice actin promoter/aroA:CP4 expression cassette (pMON30167, Figure 1), to the single CaMV35S

promoter/aroA:CP4 expression cassette (pMON42411, Figure 2) and to the double expression cassette rice actin promoter/aroA, CaMV35S promoter/aroA:CP4 (pMON30139, Figure 3) for ability to confer glyphosate tolerance to wheat plants. The results shown in Table 1 on page 15-16 demonstrates that the double expression cassette of the present invention provides an unexpected high level of vegetative and reproductive tolerance. The applicants assert that the combination of the two expression cassettes of claim 1 of the present invention provides enhanced glyphosate tolerance to plants that is unexpected by examination of the glyphosate tolerance provide by each expression cassette alone. The percent of useful glyphosate tolerant plants produced containing the P-Os.Act1/CP4 EPSPS, P-CaMV/CP4 EPSPS was 4-16 fold more than the single expression cassettes.

The DNA construct described by Brown was tested in the present invention and was shown to not provide corn plants with sufficient reproductive tolerance (Table 1, page 18, lines 22-30). These plants when sprayed with Roundup are practically sterile and not suitable for commercial use.

The applicants contend that the DNA construct of claim 1 provides an unexpected and surprisingly high level of glyphosate tolerance when expressed in plants.

Applicants thus respectfully request that this rejection to Claim 1-4 and 15 be withdrawn.

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The Examiner is invited to contact the undersigned agent at 636-737-6826 with any questions, comments or suggestions relating to this patent application.

Respectfully submitted,

E. Clifford Lawson
Reg. No. 46,860
Agent for Assignee
MONSANTO TECHNOLOGY LLC

Date: 7/11/03